Whale comeback

Some whales, including the humpback, are now less threatened with extinction, according to the latest report issued by the International Union for the Conservation of Nature (IUCN) last month. Marine biologists estimate that the number of humpbacks may have grown to more than 40,000 adults and about 15,000 juveniles, following the hunting ban that began in the 1960s. The IUCN has revised its classification of the whales from "vulnerable" to "of least concern" in its annual list of endangered species.

The southern right whale population also appears to have begun to recover — the number of these has believed to have doubled from around 7,500 in 1997.

Randall Reeves of the IUCN said: "This is a great conservation success and shows what needs to be done to ensure these ocean giants survive."

While the assessment that numbers are growing for these two species is to be welcomed, the IUCN has gloomier news for other species.

Overall, nearly a quarter of cetacean species are considered threatened and nine species are listed as endangered or critically endangered, the highest level of threat.

But one of the real problems facing the IUCN is a lack of data. More than half the 44 cetacean species are considered "data deficient", meaning future research on population numbers is a priority. And the worry is that more data could show more species in trouble. The blue whale, fin whale and sei whale all remain listed as endangered until more evidence is available of any recovery.

Whales continue to face threats from ship strikes, entanglement in fishing gear, habitat deterioration, declining prey numbers and noise disturbance.

And many of the smaller coastal cetaceans, such as dolphins and porpoises, face particular threats, the IUCN warns. "Too many of these small coastal cetaceans end up as bycatch in fisheries. This remains the main threat to them and it is only going to get worse," says Reeves.

The IUCN warns that the vulnerable vaquita, a porpoise in the Gulf of California, is likely to be the next cetacean to become extinct. Many are killed each year in fishing gear and only an estimated 150 remain in the wild. Researchers fear that it may soon follow the fate of the Yangtze river dolphin, now considered possibly extinct.

Nigel Williams

On the up: Humpback whales are one cetacean species recovering since the ban on commercial whaling, according to new data from the IUCN. (Picture: Masa Ushioda/Alamy.)

My Word

The roads not taken

Eve Marder

Last month I came across a folder of papers I had written at the age of 16 for my high school English class. This occasion, in some ways like Proust's madeleine, triggered recollections of how I, as a 16 year-old, framed the thoughts I had about what I wanted to do with my life.

One of those early papers was about Frost's poem *The Road Not Taken*. I remember not terribly liking the poem. But the image of paths leading off in different directions in the woods, leading to different futures stayed with me. At 16, I didn't know if I wanted to be a civil rights lawyer, write poems, be a journalist, run my father's business, or be a scientist. I found the plethora of choices bewildering, as I searched for clues to what my 'optimal path' should be. I worried how I would ever know what the 'best' decision would be. And, I had a palpable sense of loss for all of those unchosen futures. Then it dawned on me that there was no sense in thinking about 'optimal paths' or loss when giving up the alternatives. Instead, all one could do was choose one future and live it, as there were many possible futures that could lead to adventure and meaning, and it just mattered that the chosen path was a good one.

When I started as an undergraduate I was going to be a lawyer, but I ended up a scientist. I made career-determining decisions without looking at the long future, but always asking myself, "Does this make sense to do now?" So I studied biology as an undergraduate, and I applied to graduate school. I went to Paris for a postdoc because I was angry at the US for Vietnam and was curious to see how JacSue Kehoe could do such elegant work and raise children. Did I stubbornly continue this path called academic science? Yes. Could I have been derailed or drawn into a different path by different circumstances? Almost certainly.

Today, as a senior woman scientist and President of the Society for Neuroscience, I am aware that many of our most talented students opt to follow careers other than science. I wouldn't feel badly about the student talented

in mathematics who decides to be a film maker as long as I knew that she had been well-taught in science. I am angry when I see graduate students deeply excited about studying the brain lose their joy when their laboratory environment becomes more about "getting the paper in *Neuron*" than about discovering new knowledge. I am angry when I see graduate students crying over gratuitously hostile or mean reviews of their first papers.

Many of us are struggling for resources to do our work, with a sense of frustration because today's opportunities for scientific discovery are unparalleled. It is now, when things are difficult, that we have to be mindful that the biggest asset we have is each other. Our best and brightest young scientists came to science with the greatest of fascination with the mysteries of life. We should remember it is the drive to know and wish to help mankind that brings them to science. We are right to push them hard to explore the unknown. We are wrong to allow ourselves to be petty and ungracious in the way we treat our colleagues. Almost every manuscript that gets rejected carries the hopes and aspirations of graduate students and postdocs. We should be clear in articulating scientific issues that arise in review, but refrain from the imposition of arbitrary hurdles. We should discipline ourselves to ask for more experiments only when they are required for the scientific points of the paper, but not as an automatic response to all manuscripts when first submitted.

There is no virtue in hazing the young entering any field. They have many possible paths to follow. Extracting new knowledge is difficult enough: we should take care not to drive our best and brightest from our field for the wrong reasons. I hope that the young will join us on the long and arduous hikes to open vistas of new understanding. I hope that they will come to know the joy of seeing something or understanding something for the first time. We should take care that they avoid the paths strewn with the detritus of broken dreams. False idols often arise in troubled times. Today, more than ever, we must say that it is what the paper shows that is more important than where it is published.

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Q & A

Hanna Kokko

Hanna Kokko is a professor of animal ecology at Helsinki University in Finland. She started her career studying engineering and applied mathematics, but then learned that mathematics can be applied to biology too, and switched to ecology and evolutionary biology. She is also an adjunct professor at the Australian National University.

What got you interested in biology in the first place? In a sense I have always been — as a child I was allowed to roam around in the forests quite freely. When choosing what to study, however, I initially thought biology was best kept as a hobby. I had no clue that biology nowadays is quite a mathematical subject, so I believed that my mathematical skills would be best developed elsewhere. It was only when I discovered that ecology has a firm mathematical foundation that I switched universities and completed a PhD on how life history theory relates to sexual signalling and mate choice.

Did anyone in particular influence you at that stage? Some bureaucrats in Finland back then actively discouraged people shifting careers, which wasn't helpful! What helped was a rather forceful letter by Ilkka Hanski which explained to said bureaucrats why I should be allowed to start a PhD in biology despite not having a first degree in the subject, and the decision of Esa Ranta to send me to Britain to work with Bill Sutherland for a few months. Bill taught me that to make an impact in an area that is new to you, common sense and curiosity work surprisingly well. These two create the necessary self-confidence together with the equally necessary willingness to learn new things.

Where do you place yourself now in the scientific community? I define myself as an evolutionary ecologist, but most people know me from my contributions to theory. But really I guess my career is based on being a kind of interpreter. I translate between empiricists and theoreticians on the one hand, and ecologists and evolutionary biologists on the other.

Communication problems between empiricists and theoreticians are understandable, but surely ecologists and evolutionary biologists should know about each others' work? Not nearly enough! Our journal club discussed a paper that addressed evolutionary effects that arise in ecological experiments. The more evolution-oriented people in my lab expressed surprise that such a paper needs to be published at all, in 2008. But to many people with an ecological training, the idea that evolution can be fast enough to alter its direction because of their experiments might very well come as a surprise.

So what precisely have you contributed? Well, from the above it sounds like I blame ecologists for not